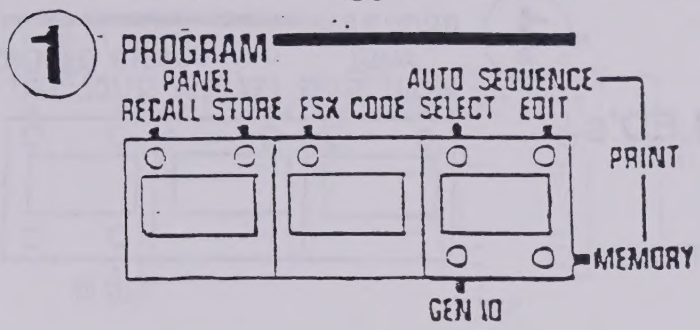
3100 B

FRONT PANEL
Programming

MP MASTER
MA26544

SOUND TECHNOLOGY

Sound Technology 3100B Front Panel



LED's

Programming Group

A. Panel Switch

1.Recall

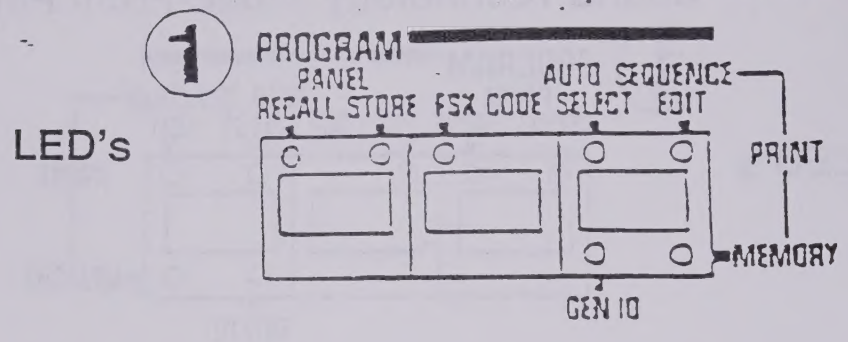
Press the panel switch until the Red LED under Recall is lit.

Use the keyboard to to select a test panel. On the Key Pad push, [1] [2] Enter (Units Displayed). This will activate panel 12, and light the appropriate LED's pertaining to that stored panel.

If nothing is stored in that panel the left display will display - - -.

NOTE: If a panel has been stored and selected the recall LED will go OUT. If you want to scan through several panels you must push the Panel Switch to light the Recall LED EACH time you want to select a Test Panel.

Sound Technology 3100B Front Panel



LED's

Programming Group

A. Panel Switch

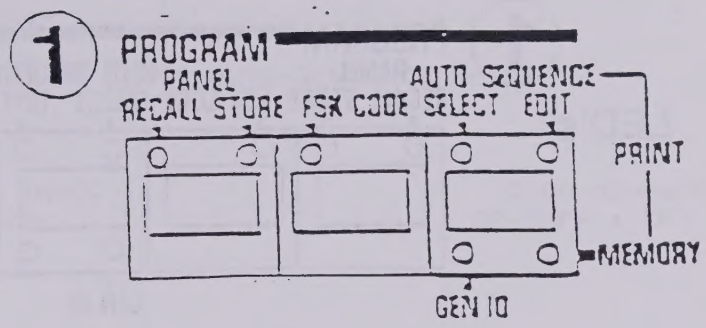
2.Store

Press the Panel Switch until the Red LED under Store is lit.

The left display will always show you the number of the last or (latest panel recalled). To store into that panel (after an edit) just press Enter (Units Displayed). To store into a different test panel, Push the number of the panel desired then the Enter (Units Displayed).

Sound Technology 3100B Front Panel

LED's



Programming Group

A. Switch #2

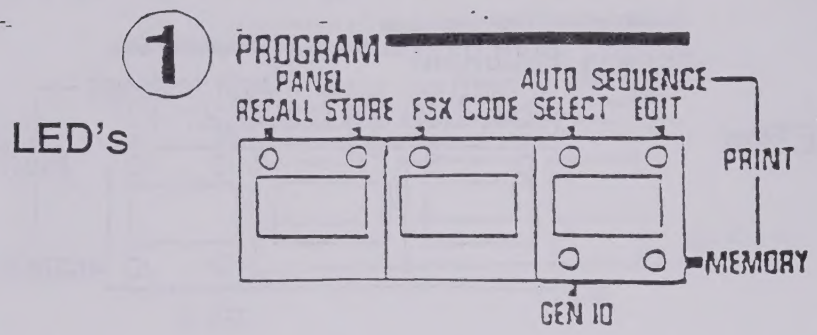
1. FSK CODE

Press switch #2 the Red LED under FSK Code Will light.

Five numbers will be displayed in each display. These five numbers represent the FSK Code which will be sent to the 3200B Analyzer with each test panel. These codes are stored in memory as an integral part of the test panel. When sent to the Analyzer they will set up the analyzer, make the measurement, store the data and print the data in either tabular or graphic format.

FSK Coding will be covered later.

Sound Technology 3100B Front Panel



Programming Group

A. Auto Sequence Switch

1. Select

Press the Auto Sequence switch until the Red LED under Select is lit. The left display will show the last auto sequence selected and last step selected. The right display will show the test panel associated with that step.

The ↑ ↓ arrow keys on the Key Pad will allow scrolling through the steps to observe which test panels are associated with each step in the auto sequence.

CAUTION: When scrolling through steps be sure to return to step 1 of the sequence. If it is left on another step and the sequence is started it will start from that step.

Pressing print (upper right Key Pad Enter Key) will print the selected auto sequence.

3100B ID : 12345 Print 43228

ST 3100B AUTO-SEQUENCE No. 1

PANEL No. 1

OP-CODE 56000 00000 0.00 dBm-600
RL = 600.00 Ohm DE-EMPH : Off

PANEL No. 2

OP-CODE 59000 20000 0.00 dBm-600
RL = 600.00 Ohm DE-EMPH : Off

PANEL No. 3

OP-CODE 67000 00000 0.00 dBm-600
RL = 600.00 Ohm DE-EMPH : Off

PANEL No. 4

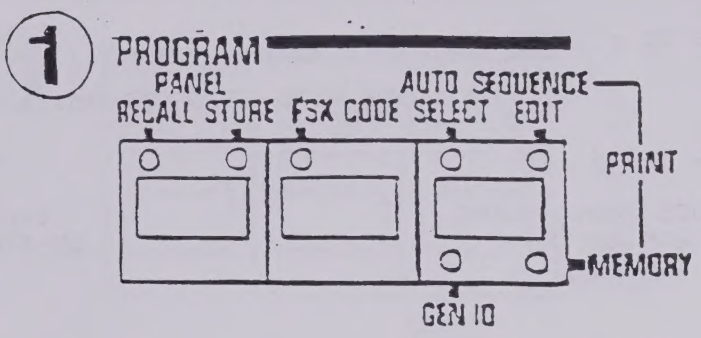
FIXED PARAMETERS SINE 0.00 dBm-600 1.0000 kHz 10.000 sec Dur

A&B-CH ON RS = 600 Ohm RL = 600.00 Ohm DE-EMPH : Off
OP-CODE 11345 42221

PANEL No. 5

LOG FREQUENCY SWEEP SINE - 5.00 dBm-600 10.000 Hz TO 40.000 kHz
5 Pts/Dec TIME MULT = 25
A&B-CH ON RS = 600 Ohm RL = 600.00 Ohm DE-EMPH : Off
OP-CODE 31345 42222

Sound Technology 3100B Front Panel



LED's

Programming Group

A. Auto Sequence Switch

1. Edit

After selecting an auto sequence you may want to change a panel in one of the steps.

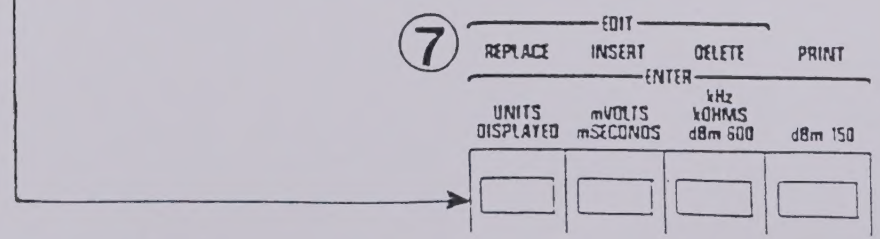
Press the Auto Sequence switch until the Red LED under Edit is lit.

Using the ↑ ↓ Arrow Keys on the Key Pad select the step to be changed. (Shown in the left display).

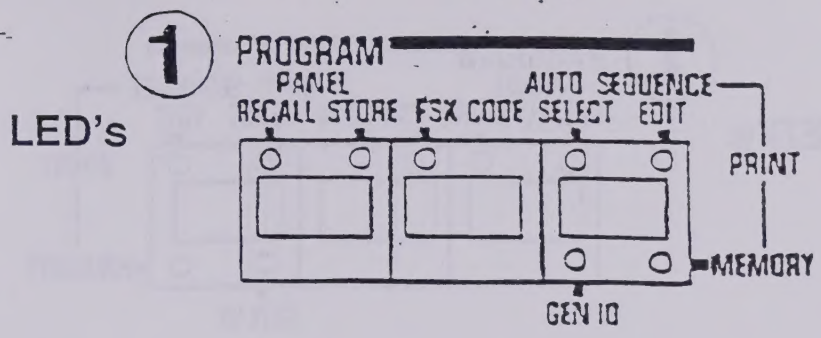
Using the Key Pad press the number of the panel you want and press the (Edit) Replace Key. (Upper Left Enter Key)

NOTE: The display increments to the next step!

If you want to review the change use the ↑ ↓ arrow keys.



Sound Technology 3100B Front Panel



Programming Group

A. Auto Sequence Switch

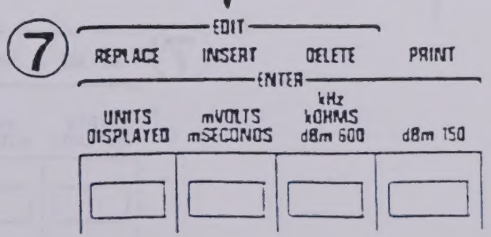
1. Edit Continued

You may want to insert a step (new Test Panel) in an Auto Sequence.

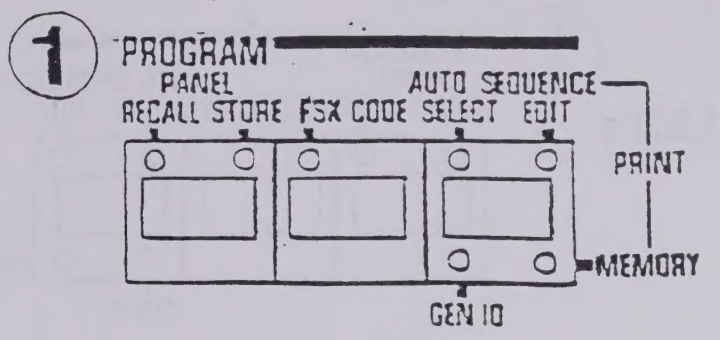
Use the ↑ ↓ Arrow Keys to select the step where the insert is desired.

Using the Key Pad press the number of the panel you want inserted and press the (Edit) Insert Key. (Second Enter Key).

Review the insertion with the ↑ ↓ Arrow Keys.



Sound Technology 3100B Front Panel



LED's

Programming Group

A. Auto Sequence Switch

1. Edit Continued

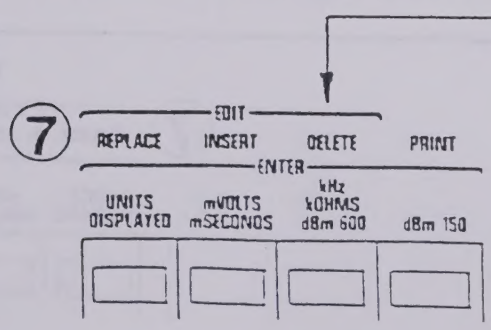
You may want to delete a Test Panel from a sequence.

Select the test panel to be deleted with the ↑ ↓ Arrow Keys.

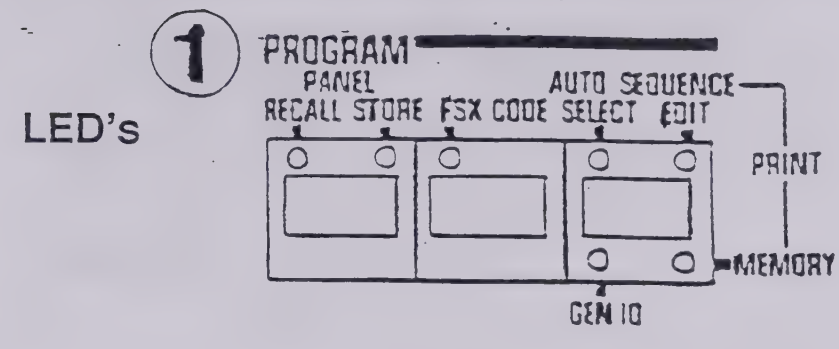
Press the (Edit) Delete Key (Third Enter Key).

Review the deletion with the ↑ ↓ Arrow Keys.

CAUTION: Remember to use the ↑ ↓ Arrow Keys to return the sequence to step one!



Sound Technology 3100B Front Panel



LED's

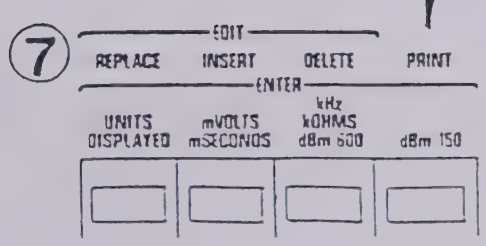
Programming Group

A. Auto Sequence Switch

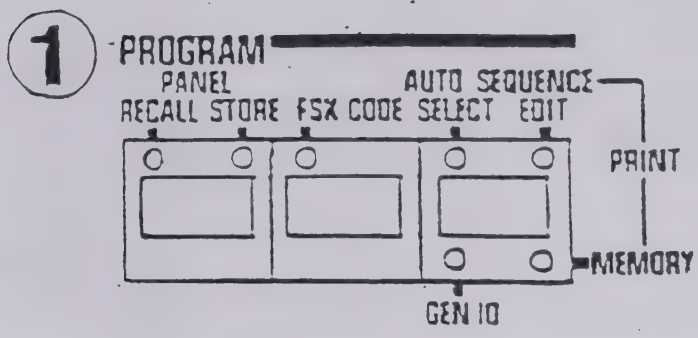
1. Memory

Press the Auto Sequence Switch until the Red LED next to Memory is lit.

You may print the entire test panel memory, auto sequence memory and selected frequency memory contents by pressing the (Edit) Print key.



Sound Technology 3100B Front Panel



LED's

Programming Group

A. Auto Sequence Switch

1. Gen ID and Password Protection

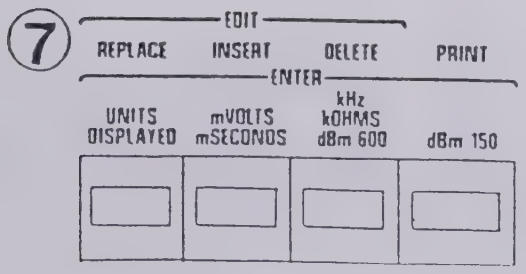
   Press the Auto Sequence switch until the Gen ID Red LED is lit.

   The Generator ID will be displayed in the left display.

   When shipped from the factory the ID number is blank.

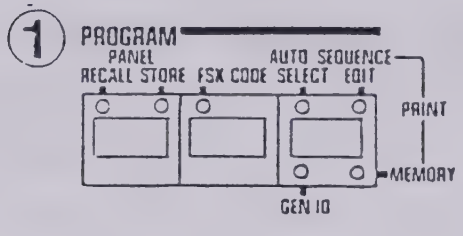
2. Entering a Gen ID number.
   Using the Key Pad press [1] [2] [3] [4] -Enter (Units Displayed).

   This number will then be transmitted to the Analyzer whenever an Auto Sequence is ran.



Sound Technology 3100B Front Panel

LED's



Programming Group

A. Auto Sequence Switch

3. Gen ID and Password Protection Continued

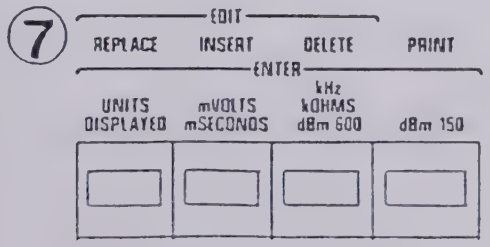
If you want to use the password protection light the Gen ID LED.
Using the Key Pad enter [+/-] [X] [X] [X] [X] where the X's are any four digit number you desire.
Example -1234 Enter (Units Displayed).

You will no longer be able to access the STORE or EDIT functions.

Now enter any number up to 5 digits to hide your pass word.

Don't forget your password or you may end up sending the unit back to the factory to have it cleared.

If you can remember the password it can be disabled by entering [0] [X] [X] [X] [X].
Example 01234 Enter (Units Displayed).



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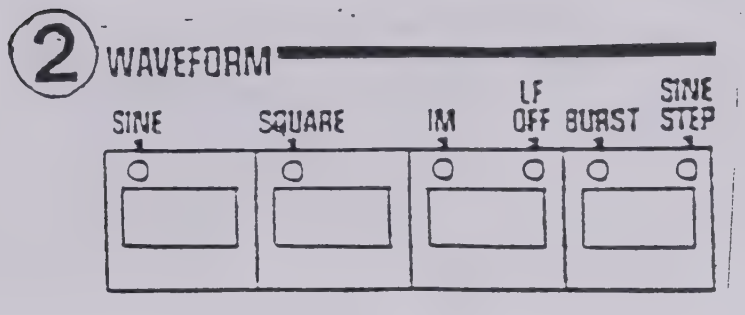


Waveform Group

This group of switches selects the type of output waveform the operator can output.

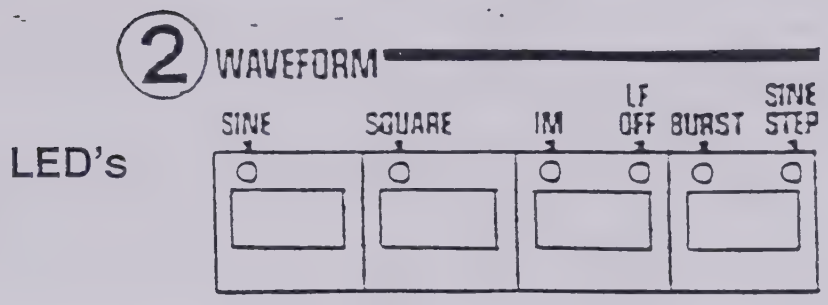
1. Sine
   Produces sinewave output.

2. Square
   Produces a squarewave output.

3. IM
   Produces SMPTE Intermod 4:1, 7kHz/60Hz.

4. LF OFF
   Turns off 60Hz of IM waveform.

Sound Technology 3100B Front Panel



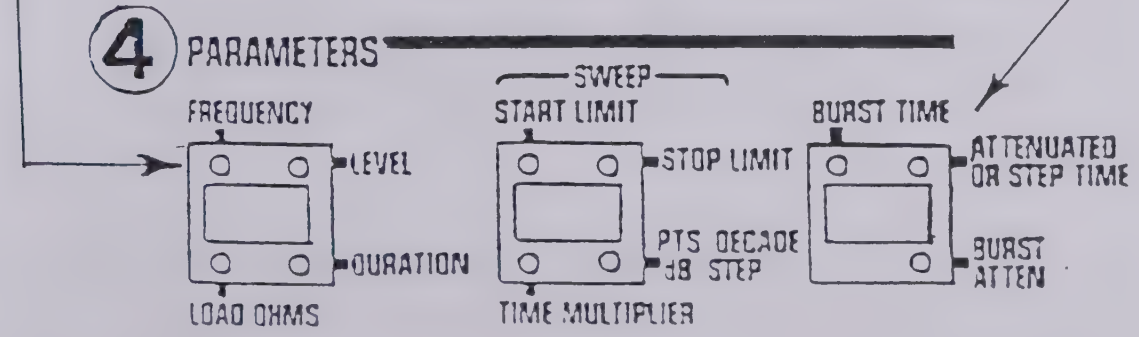
Waveform Group Continued

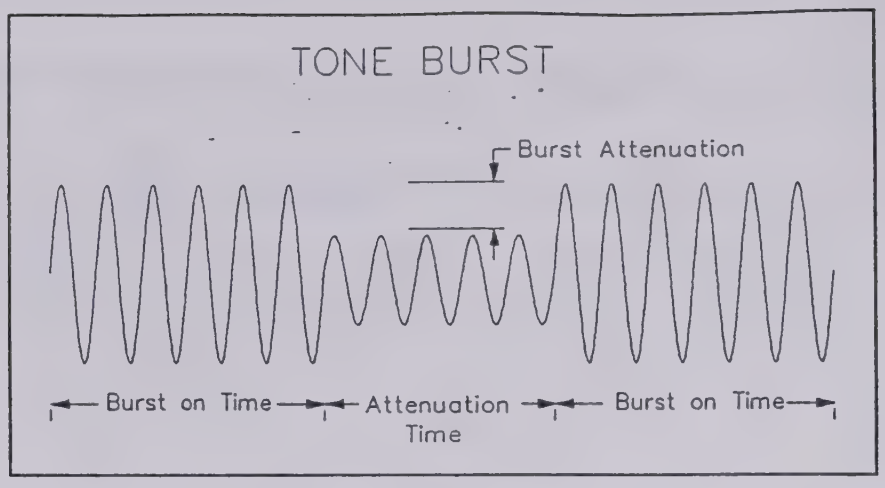
5. Burst
   Produces a Tone Burst waveform.
   Using the Burst Time, Attenuated or Step Time, and Burst Attenuation Switch the parameters of the Burst waveform can be varied.
   The Frequency and Level Parameter switches can also be used to modify the waveform.

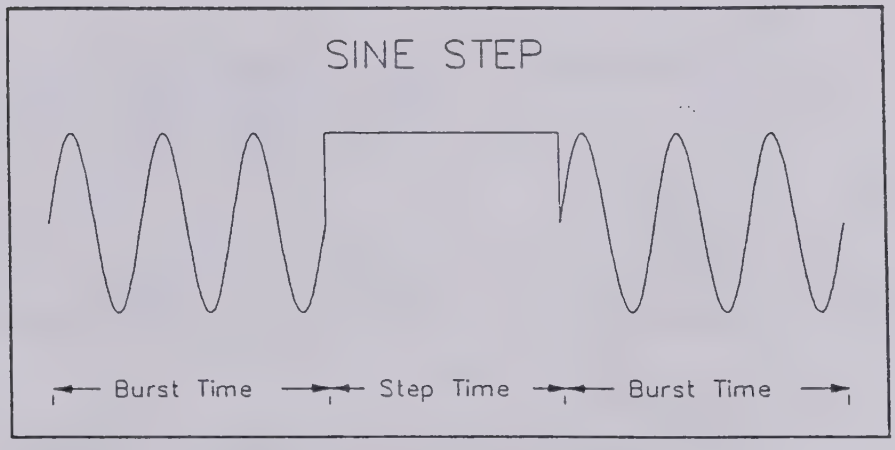
6. Sine/Step
   Produces a similar waveform to Tone Burst but with a DC burst which is offset.

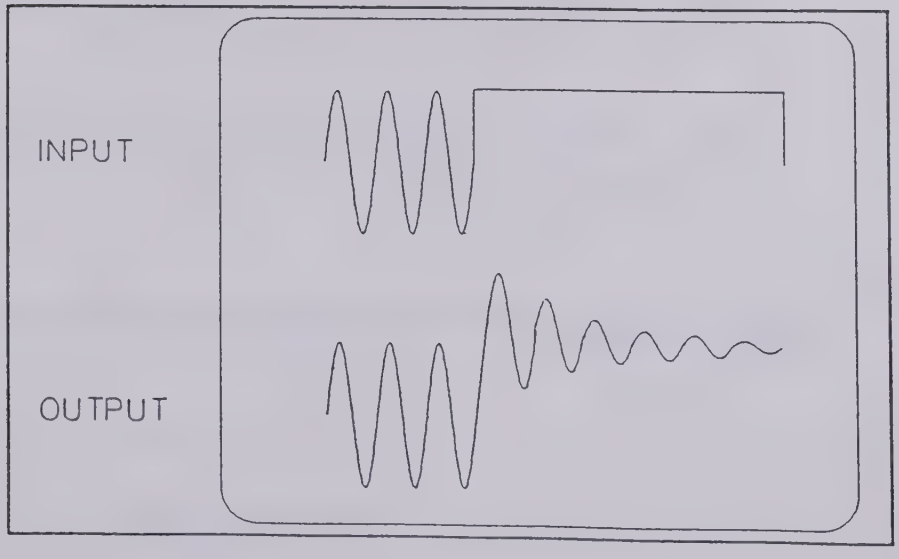
   Burst and Sine/Step are used for the testing of VU and Peak indicating meters.

   Burst and Sine/Step are also used for testing Limiters, Compressors, Expanders, Filters, and Companders.

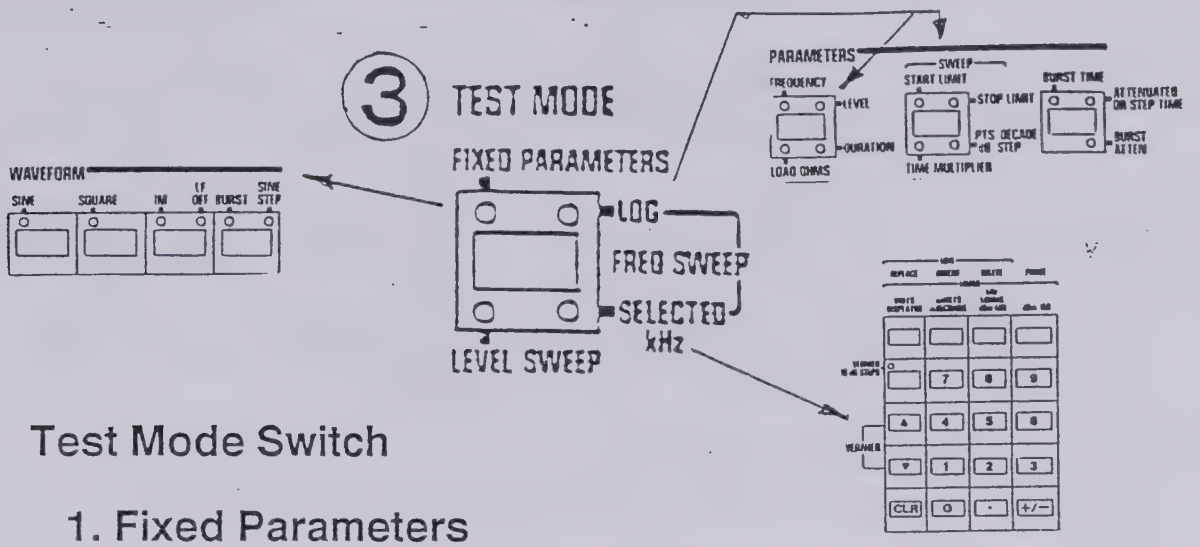



TONE BURST
Burst Attenuation
Burst on Time
Attenuation Time
Burst on Time


SINE STEP
Burst Time
Step Time
Burst Time


INPUT
OUTPUT

Sound Technology 3100B Front Panel



Test Mode Switch

1. Fixed Parameters
   Sets test mode to fixed parameters for the use of the waveform group.

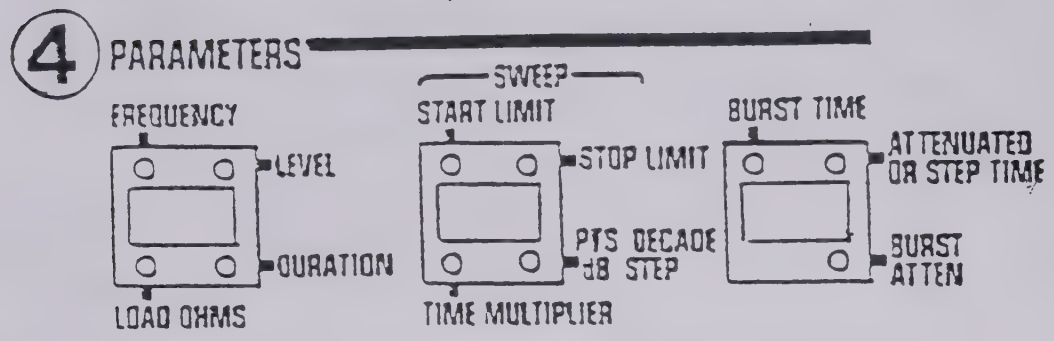
2. Log
   Sets the test mode to "instrument selected" logarithmic frequency sweep.

   User may define level, start frequency, stop frequency, points per decade, and time multiplier.

3. Selected kHz
   Sets the test mode to a user defined frequency table.

   User may define individual frequencies, level, and time multiplier.

   NOTE: When using Selected Frequency Sweep and the 3200B companion Analyzer an FSK code must be sent to the Analyzer defining the points per decade which you must calculate.



Parameters Group

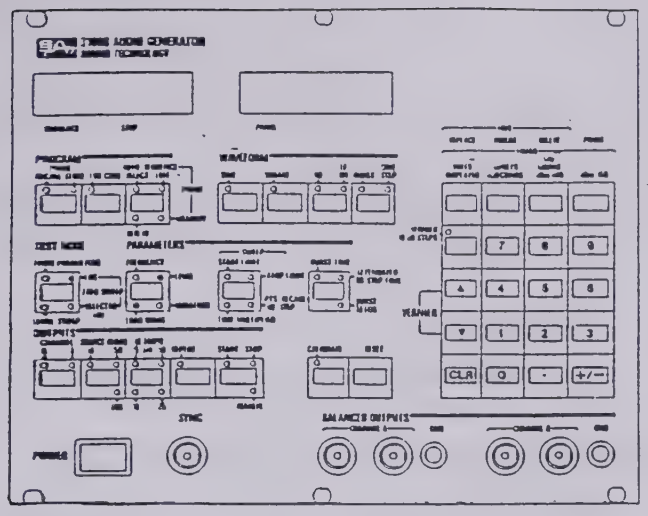
A. Switch #1

1. Frequency
   Allows the user to set the output frequency for the Waveform Group, (except IM), Selected frequency sweeps, and level sweep frequency.

2. Level
   Allows the user to set the output level for the Waveform Group, Log Frequency Sweeps, and Selected Frequency Sweeps.

   The Level Parameter may also be used to OFFSET the level of a previously programmed auto sequence. The OFFSET will be displayed in the left display. It must be remembered this is an OFFSET to the ORIGINALLY programmed level not a new level set. i.e. original +10dBm, offset -6dBm output will be +4dBm.

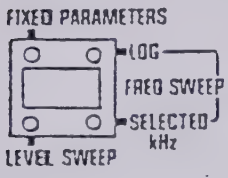
3. Duration
   Allows the user to set the duration of fixed parameter test panels for use during an auto sequence.



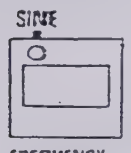
THE 3100B AS A MANUAL OSC.

Manual operation of the 3100B initially requires eight steps.

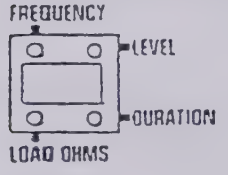
Building a test panel with a Sinewave at 1kHz, +4dBm, source and load of 600 ohms, and driving the "A" channel is shown below.



Select the Fixed Parameter LED.

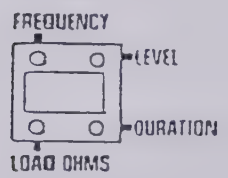


Select the Sinewave Waveform.

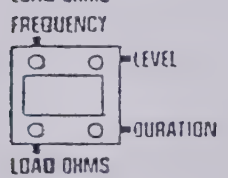


Select the Frequency LED. Push the [1] key on the keypad.Press the kHz Enter key on the keypad.

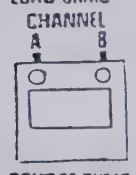
Select the Level LED. Push the [4] key on the keypad. Push the dBm600 Enter key on the keypad.



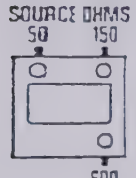
Select the Load Ohms LED. Push the [6] [0] [0] keys on the keypad. Push the units displayed Enter key on the keypad.



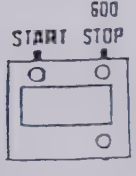
Select the Channel A LED.

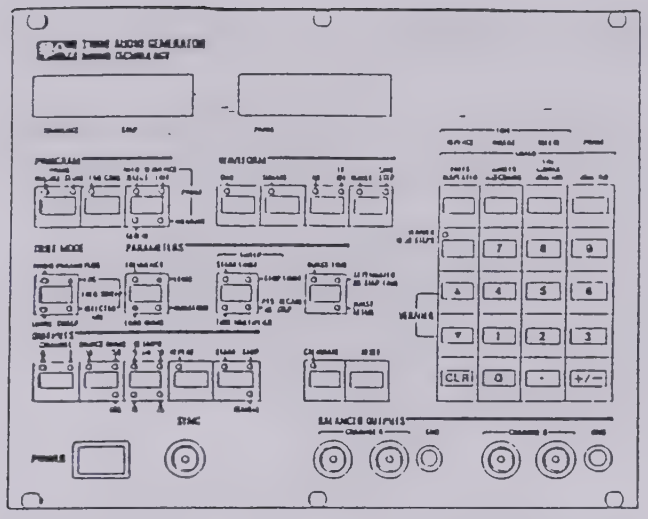


Select the Source Ohms 600 LED.



Select the Start LED.

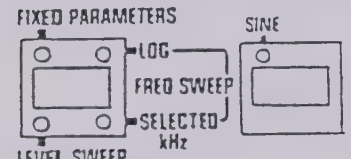




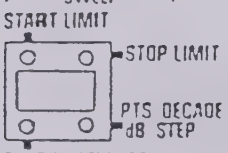
3100B LOG FREQUENCY SWEEP

Log Frequency Sweep operation of the 3100B requires ten steps.

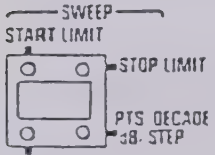
Building a log sweep panel 50 Hz-22kHz, 10 pts/decade, time multiplier 50, -10dBm, source and load of 600 ohms, and driving the "A" channel is shown below.



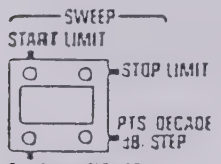
Select the Log Parameter LED. The Sine LED and Start Limit LED will Light. Press 5 0 on the key pad. Press the Units Selected Enter key. (50 Hz)



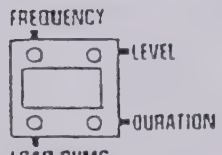
Select the Stop Limit LED. Press 2 2 on the key pad. Press the kHz Enter key. (22kHz)



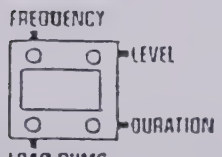
Select the Points Decade LED. Points/Decade selects the number of points in each frequency decade that will be output and measured by the analyzer. Press 1-0 on the keypad. Press the Units Selected Enter key



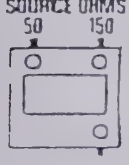
Select the Time Multiplier LED. Time multiplier will determine how long each frequency will be at the output. Press the 5 0 key on the keypad. Press the Units Selected Enter Key. (30ms/unit)



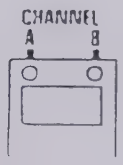
Select the Level LED. Press the -/+ 1 0 key on the keypad. Press the dBm600 Enter key on the keypad. (-10dBm)



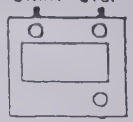
Select the Load Ohms LED. Press the 6 0 0 keys the keypad. Press the units displayed Enter key on the keypad. (600 ohms).



Select the Source 600 ohms LED.

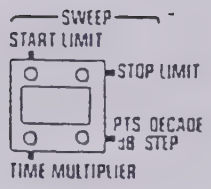


Select the Channel A LED



Select Start

3100B LOG FREQUENCY SWEEP



Log Frequency Sweep operation

Points / Decade

Select the Points Decade LED. Points/Decade selects the number of points in each frequency decade that will be output and measured by the analyzer.

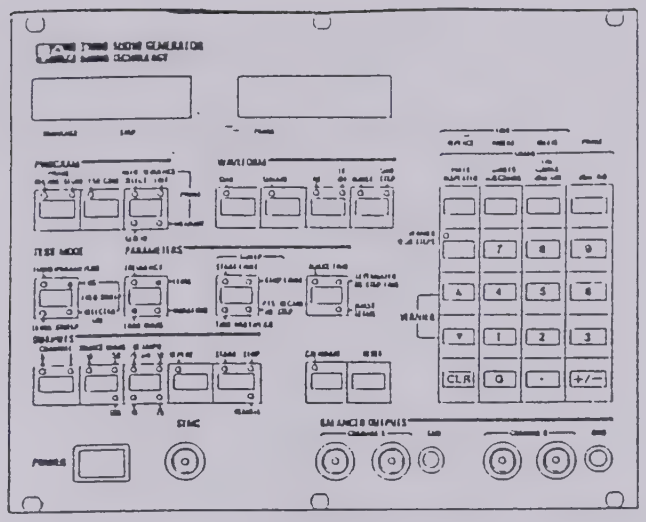
The points/decade must be high enough high enough to accomodate the two adjacent frequencies. The higher frequency divided by the lower frequency has the smallest ratio.

Take the sequence: 1kHz, 2kHz, 5kHz, 7kHz, 10kHz, 11kHz, 12kHz, 13kHz, 15kHz. 20kHz.

The corresponding ratios are 2 (2kHz/1kHz), 2.5, 1.4, 1.43, 1.1, 1.09, 1.08 (13kHz/12kHz), 1.15 and 1.33. The lowest ratio of the adjacent frequencies occurs at 12 kHz and 13kHz. The equivalent maximum points per decade is calculate by dividing 1 by the log of this minimum ratio.

$$\text{Pts/ Decade} = \frac{1}{\log(13/12)} = 28.8$$

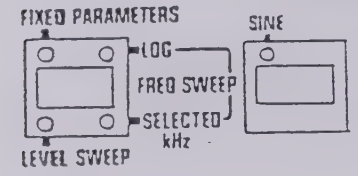
Use the next higher integer, 29.



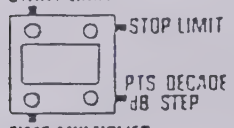
3100B LEVEL SWEEP

Level Sweep operation of the 3100B requires ten steps.

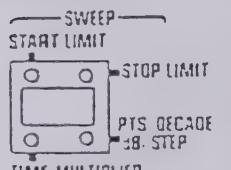
Building a level sweep panel 30dBm to -40dBm, .5dB/Steps, time multiplier 100, 10kHz, source and load of 600 ohms, and driving the "A" channel is shown below.



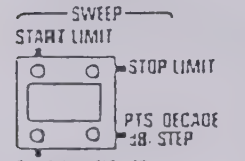
Select the Level Sweep Parameter LED. The Si LED and Start Limit LED will Light. Press 3 0 the key pad. Press the dBm 600 Enter key. (30 dBm).



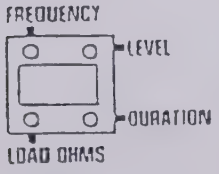
Select the Stop Limit LED. Press +/- 4 0 on the key pad. Press the dBm 600 Enter key. (-40dBm).



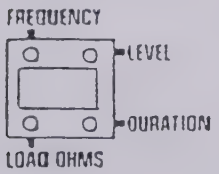
Select the dB Step LED. dB/Step selects the attenuation step of the signal after each time multiplier period that will be output and measured by the analyzer. Press . 5 on the keypad. Press the Units Selected Enter key. (.5 dB steps).



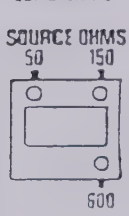
Select the Time Multiplier LED. Time multiplier will determine how long each level will be at the output. Press the 1 0 0 key on the keypad. Press Units Selected Enter Key. (30ms/unit)



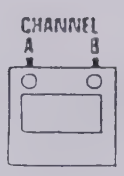
Select the Frequency LED. Press the 1 0 key on the keypad. Press the kHz Enter key on the keypad. (10 kHz).



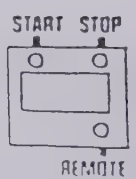
Select the Load Ohms LED. Press the 6 0 0 keys the keypad. Press the units displayed Enter key on the keypad. (600 ohms).



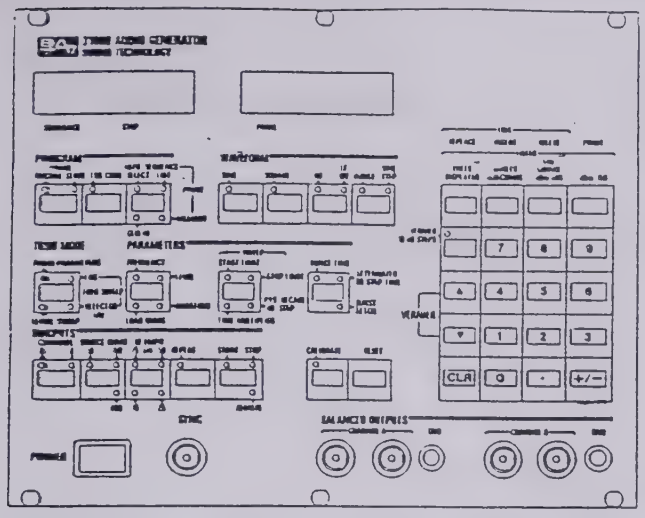
Select the Source 600 ohms LED.



Select the Channel A LED

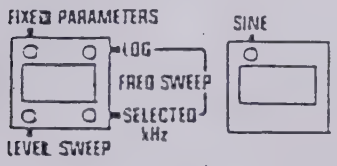


Select Start

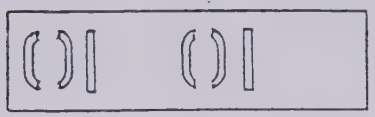


3100B SELECTED FREQUENCY TABLE

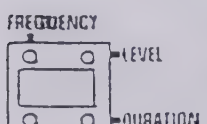
Building a selected frequency sweep table, user selected frequencies, 0dBm output, time multiplier 50,source and load of 600 ohms, and driving the "A" channel is shown below below.



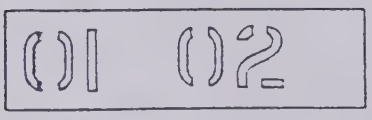
Select the Select kHz Sweep Parameter LED. The Sine LED will Light. Press [1] on the key pad. Press the Units Displayed Enter key.



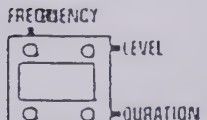
The Upper Left Display will show 01 01. (Table 1 Step 1).



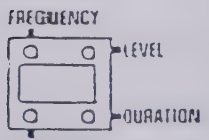
Select Frequency LED. Press [.] [5]. Press Units displayed. First frequency will be 500Hz.



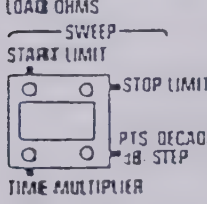
The upper left display will show 01 02. The step counter Automatically increments. Press .5-8-3. Press Units Displayed. Second Frequency will be 583 Hz. You can continue in this manner up to a max. of 200 frequencies.



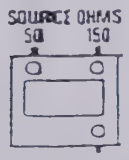
Select the Level LED. Press [0]. Press dBm 600 Enter key. (0 dBm).



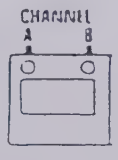
Select Load Ohms LED. Press [6] [0] [0]. Press Units Displayed Enter key. (600 Ohms).



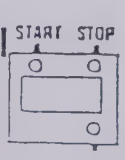
Select the Time Multiplier LED. Time multiplier will determine how long each selected frequency will be at the output. Press the [1] [0] [0] key on the keypad. Press the Units Selected Enter Key.



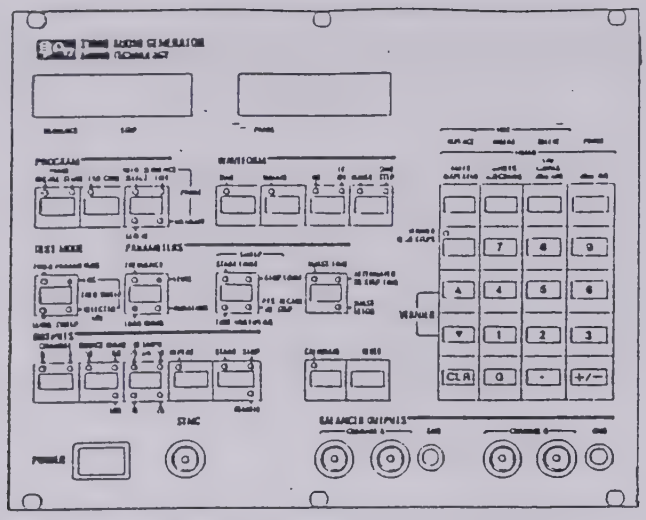
Select the Source 600 ohms LED.



Select the Channel A LED



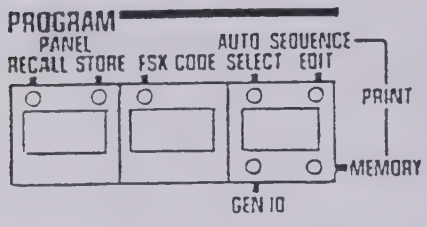
Select Start



3100B FSK CODES

Pure Operation Codes

Operation Codes



FSK Codes are 10 digit codes for the complet control and operation of the 3200B Analyzer. An op-code is stored with each test panel and sent to the analyzer through the audio channel when the panel is recalled in an auto-sequence.

EVERY PANEL TO BE USED IN AN AUTO SEQUENCE MUST CONTAIN A VALID OP-CODE.

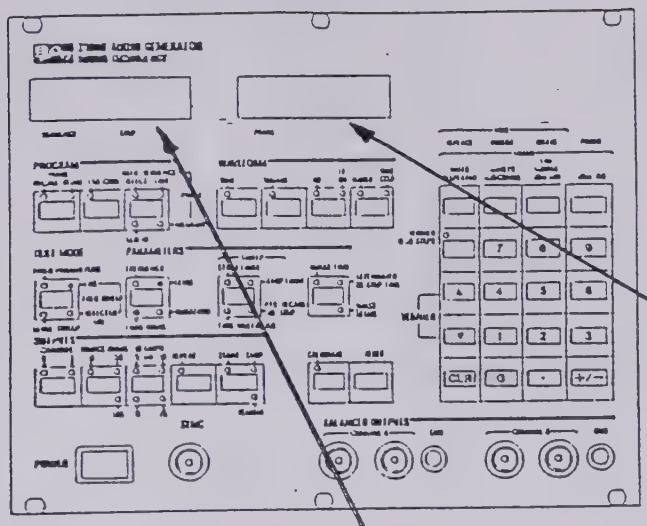
Pure Op-Codes

There are instances where we want to command the analyzer to perform a function, but where that function is not applicable to a generator function or test. These instances are delineated and implemented as Pure Op-Codes.

When a Pure Op-Code is used in a test panel only the op-code is sent to the analyzer.

3100B FSK CODES

Operation Codes



3 2 3 4 5 — DISPLAY 'A'

6 2 2 2 2 — DISPLAY 'B'

10 DIGIT FSK CODE

TEST	MEASUREMENT	CHANNEL	HP FILT	LP FILT
0 NO OP CODE	0 FLAT FLUTTER	0 •	0 •	0 •
1 NORMAL 1	1 FILTERED LEVEL	1 A	1 22 Hz	1 15 kHz
2 NOISE	2 RATIO	2 B	2 200 Hz	2 22 kHz
3 F-SWEEP 1	3 NOTCH LOCK	3 A & B	3 400 Hz	3 30 kHz
4 L-SWEEP 1	4 THD vs LEVEL		4 NONE	4 80 kHz
	5 THD vs FREQ			5 NONE
	6 PHASE - DEG			
	7 PHASE - TIME			
	8 IMD			
	9 CH SEPARATION			

		UNITS		
WEIGHTING	DETECTION	LEVEL	THD	MISC
0 •	0 •	0 •	0 •	0 •
1 A	1 AVG	1 VOLTS	1 %	1 REF SET
2 CCIR 2	2 RMS	2 600 dBm	2 dB	2 A-RANGE 0
3 Option FILTER 1	3 Q-PEAK	3 150 dBm		3 A-RANGE 0
4 Option FILTER 2		4 WATTS		
5 WEIGHTED FLUTTER		5 dB REL 3		
6 NONE				

DISPLAY 'A'

DISPLAY 'B'

10 DIGIT FSK CODE

NOTES:

1 Use Points / Decade or dB / Step to regulate the number of data points to be stored. Frequency changes > Points / Decade and Level changes > dB / Step will be recorded. Normal records changes > 5%.

2 For CCIR-ARM use AVG detection.
For CCIR-468-2 use Q-PEAK detection.

3 Used only for THD tests.
Level is measured relative to the reference level.

Test _____ PANEL NUMBER _____

REQUIRED PURE OP-CODES

☐ Print Data - Don't go Local.	50000-00000	Panel 50	☐ Noise Floor mV 0001 - 1000	60000-_ _ _ _0	Panel 6
☐ Print Data - Then go Local.	51000-00000	Panel 51	☐ dB/Step 00.05 - 20.00	61000-_ _ _ _0	Panel _
☐ Read Delay	52000-_ _ _ _ _	Panel _ _	☐ Points/Decade 004 - 255	62000-_ _ _00	Panel _
☐ Stop	53000-00000	Panel 53	☐ Noise Floor dB below 0 dBu 0-60	63000-_ _000	Panel _
☐ Go to Local	54000-00000	Panel 54	☐ Self Check	64000-00000	Panel 6
☐ Lock out Reset on front panel	55000-00000	Panel 55	☐ Impedance for Watts 01 - 99	65000-_ _000	Panel _
☐ Clear Memory	56000-00000	Panel 56	☐ Reserved	66000-00000	
☐ Tabular Data Printout	57000-00000	Panel 57	☐ Normal Speed	67000-00000	Panel 6
☐ Graphic Data Printout	58000-00000	Panel _ _	☐ Fast Speed	68000-00000	Panel 6
☐ Tabular & Graphic Printout	59000-00000	Panel _ _	☐ Input Impedance: 1=HI 2=LO	69000-_0000	Panel _

GENERATOR SET-UP

TEST MODE - FIXED

WAVEFORM ☐ Sine-Test Op-Code 1 or 2 ☐ Square ☐ IM-Measurement Op-Code 8 ☐ LF Off ☐ Burst ☐ Sine Step

FREQUENCY _____Hz _____kHz

LEVEL _____V _____ mV _____dBm600 _____dBm150

DURATION _____Seconds

LOAD OHMS _____ohms _____ kohms

CHANNEL ☐ A ☐ B ☐ A & B

SOURCE OHMS ☐ 50 ☐ 150 ☐ 600

DE-EMPHSIS ☐ 75 ☐ 50 ☐ 25 ☐ 10

BURST TIME _____ Atten. dBm _____ Step/Time _____ Burst Atten. _____

TEST MODE - LOG SWEEP- Analyzer Test Op-Code 3

START LIMIT _____Hz _____kHz

STOP LIMIT _____Hz _____kHz

PTS/DECADE _____ Analyzer Op-Code Required

TIME MULT _____

LEVEL _____V _____mV _____dBm600 _____dBm150

LOAD OHMS _____ohms _____ kohms

CHANNEL ☐ A ☐ B ☐ A & B

SOURCE OHMS ☐ 50 ☐ 150 ☐ 600

DE-EMPHSIS ☐ 75 ☐ 50 ☐ 25 ☐ 10

TEST MODE - LEVEL SWEEP-Analyzer Test Op-Code 4

START LIMIT _____dBm600 _____dBm150

STOP LIMIT _____dBm600 _____dBm150

dB/STEP _____dB Analyzer Op-Code Required

TIME MULT. _____

FREQUENCY _____Hz _____kHz

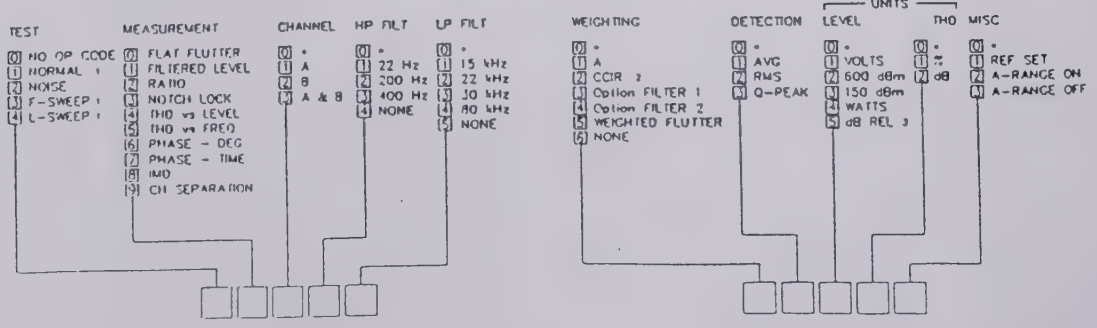
LOAD OHMS _____ohms _____ kohms

CHANNEL ☐ A ☐ B ☐ A & B

SOURCE OHMS ☐ 50 ☐ 150 ☐ 600

DE-EMPHSIS ☐ 75 ☐ 50 ☐ 25 ☐ 10

ANALYZER REQUIRED OP-CODES



Test _____ PANEL NUMBER _____

TEST MODE - SELECTED FREQUENCIES kHz - Sequence Number _____

FREQUENCY _____Hz _____kHz
FREQUENCY _____Hz _____kHz
FREQUENCY _____Hz _____kHz
FREQUENCY _____Hz _____kHz
FREQUENCY _____Hz _____kHz
FREQUENCY _____Hz _____kHz
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FREQUENCY _____Hz _____kHz
FREQUENCY _____Hz _____kHz
FREQUENCY _____Hz _____kHz
FREQUENCY _____Hz _____kHz

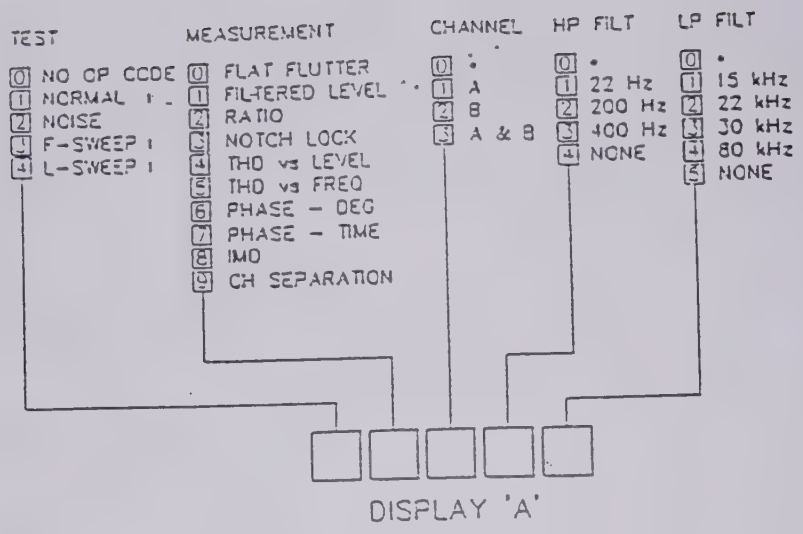
LEVEL _____V _____ mV _____dBm600 _____dBm150

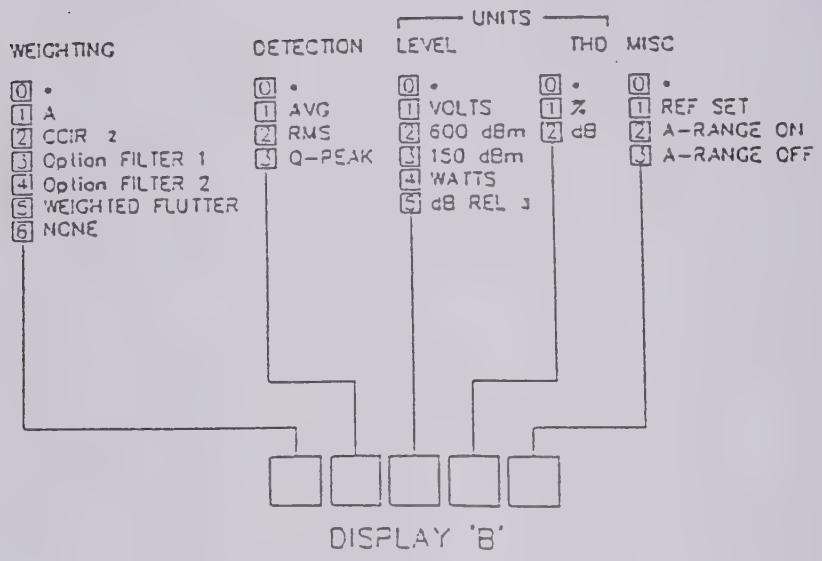
LOAD OHMS _____ohms _____ kohms

CHANNEL ☐ A ☐ B ☐ A & B

SOURCE OHMS ☐ 50 ☐ 150 ☐ 600

DE-EMPHSIS ☐ 75 ☐ 50 ☐ 25 ☐ 10





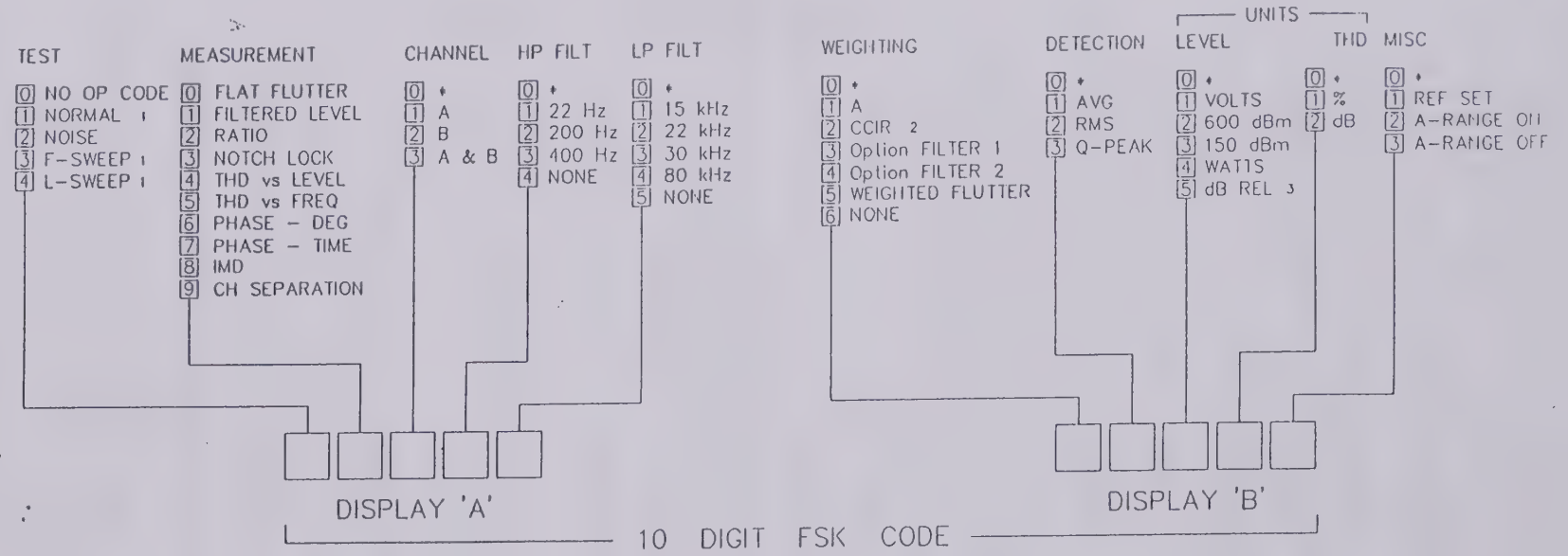
NOTES:

1 Use Points / Decade or dB / Step to regulate the number of dat points to be stored. Frequency changes > Points / Decade and Le changes > dB / Step will be recorded. Normal records changes > 5

2 For CCIR-ARM use AVG detection.
For CCIR-468-2 use Q-PEAK detection.

3 Used only for THD tests.
Level is measured relative to the reference level.

SOUND TECHNOLOGY 2000 / 3000 SERIES FSK CODES



NOTES:

- * Use 0 to assume same code as previous test.

1 Use Points / Decade or dB / Step to regulate the number of data points to be stored. Frequency changes > Points / Decade and Level changes > dB / Step will be recorded. Normal records changes > 5%.

2 For CCIR-ARM use AVG detection.
For CCIR-468-2 use Q-PEAK detection.

3 Used only for THD tests.
Level is measured relative to the reference level.

PURE OP CODES:

50000 00000	Print Data
51000 00000	Print Data - then go to LOCAL
52000 00000	Start
53000 00000	Stop
54000 00000	Go to LOCAL
55000 00000	Lock out RESET on front panel
56000 00000	Clear Memory
57000 00000	Tabular Data printout
58000 xx000	Graphic Data printout 04 - 99 points
59000 xx000	Tabular & Graphic printout 04 - 99 points
60000 xxxx0	Noise Floor mV 0001 - 1000
61000 xxxx0	dB / Step 00.05 - 20.00
62000 xxx00	Point / Decade 004 - 255
63000 xx000	Noise Floor dB below 0 dBu 0 - 60
64000 00000	Self Check
65000 xx000	Impedance for Watts 01 - 99
67000 00000	Normal Speed
68000 00000	Fast Speed
69000 x0000	Input Impedance: 1 = HI 2 = LO

Software Rev
S3200F
890301

AUTO SEQUENCES

Typical Auto Sequence Pre-Programed as Auto Sequence 14 when shipped from factory.

TESTS

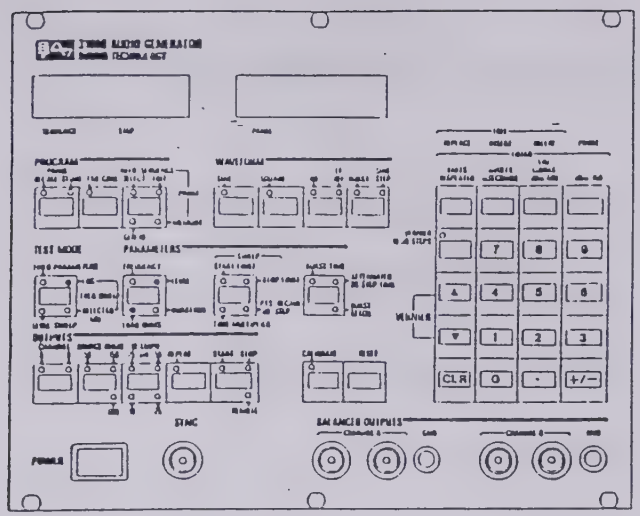
1. Reference Level	Panel Number 21	Op-Code 41345-42201
2. Noise Test (Ratio)	Panel Number 22	Op-Code 22313-12002
3. THD vs Frequency	Panel Number 37	Op-Code 35113-61122
4. Ratio vs Frequency	Panel Number 24	Op-Code 32313-62222
5. Phase vs Frequency	Panel Number 28	Op-Code 36345-60002

REQUIRED PURE OP-CODES

1A. Clear Analyzer Memory	Panel Number 56	Pure Op-Code 56000-00000
2A. Set Analyzer to Fast Speed	Panel Number 68	Pure Op-Code 68000-00000
3A. Tabular & Graphic Printout	Panel Number 59	Pure Op-Code 59000-00000
4A. Points/Decade	Panel Number 62	Pure Op-Code 62000-00000
5A. Print the Data then Go Local	Panel Number 51	Pure Op-Code 51000-00000

Once the Tests have been defined and the Pure Op-Codes required are selected they need to be put in a logical sequence for the Analyzer to follow.

1A. Clear Analyzer Memory.	Panel 56
2A. Set Analyzer to Fast Speed	Panel 68
3A. Tabular & Graphic Printout	Panel 59
1. Set Reference	Panel 21
2. Noise Test (Ratio)	Panel 22
4A. Set Analyzer for Pts/Decade	Panel 62
3. THD vs Frequency	Panel 37
4. Ratio vs Frequency	Panel 24
5. Phase vs Frequency	Panel 28
5A. Print the Data and Go Local	Panel 51



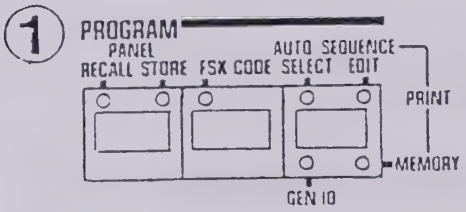
3100B AUTO SEQUENCE

Building an Auto Sequence.

Using the previous Panels:

56, 68, 59, 21, 22, 62,

37, 24, 28, 51.

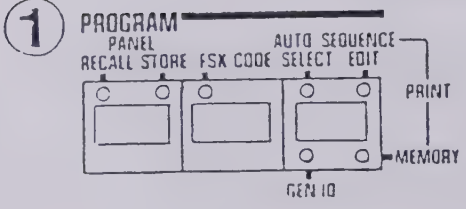


Select the Auto Sequence Select LED.

Press [1] [6] (An unused Sequence will show 000 in the right Display), or any unused sequence number on the key pad. Press the Enter (Units Displayed) key. (Sequence 16).

The left display will show 16 01.

The right display will show 000.



Select the Auto Sequence Edit LED.

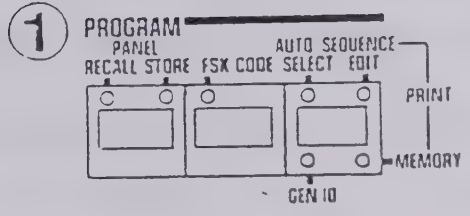
Press [5] [6] on the key pad.
Press the Enter (Units Displayed) key.

The Step count in the Left Display will increment to 02.

Press [6] [8] on the key pad.
Press the Enter (Units Displayed) key.

The Step count in the Left Display will increment to 03.

3100B AUTO SEQUENCE



Building an Auto Sequence.

Using the previous Panels:

56, 68, 59, 21, 22, 62,

37, 24, 28, 51.

Press [5] [9] on the key pad.
Press the Enter (Units Displayed) key.

The Step count in the Left Display will increment to 04.

Press [2] [1] on the key pad.
Press the Enter (Units Displayed) key.

The Step count in the Left Display will increment to 05.

Press [2] [2] on the key pad.
Press the Enter (Units Displayed) key.

The Step count in the Left Display will increment to 06.

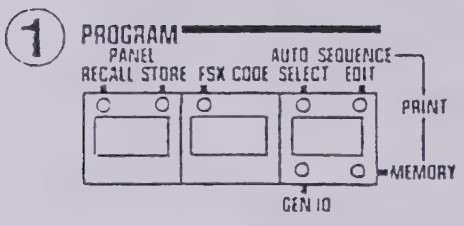
Press [6] [2] on the key pad.
Press the Enter (Units Displayed) key.

The Step count in the Left Display will increment to 07.

Press [3] [7] on the key pad.
Press the Enter (Units Displayed) key.

The Step count in the Left Display will increment to 08.

3100B AUTO SEQUENCE



Building an Auto Sequence.

Using the previous Panels:

56, 68, 59, 21, 22, 62,

37, 24, 28, 51.

Press [2] [4] on the key pad.
Press the Enter (Units Displayed) key.

The Step count in the Left Display will increment to 09.

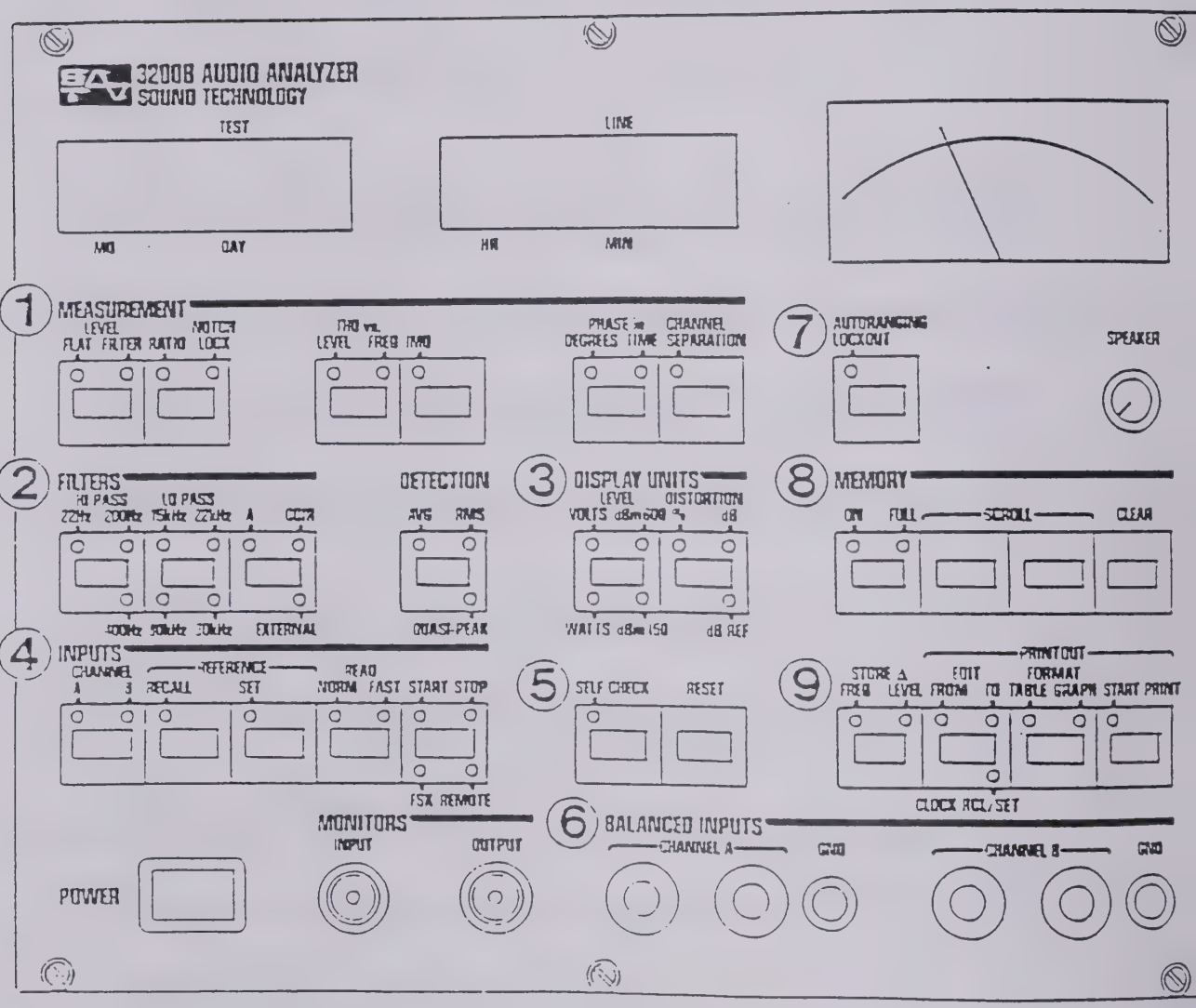
Press [2] [8] on the key pad.
Press the Enter (Units Displayed) key.

The Step count in the Left Display will increment to 10.

Press [5] [1] on the key pad.
Press the Enter (Units Displayed) key.

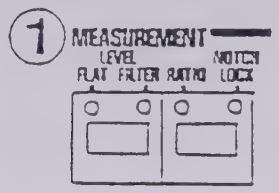
The Step count in the Left Display will increment to 11 and the right Display will show 000.

You can review the Sequence with the ↑ ↓ arrow keys on the key pad.



3200B ANALYZER FRONT PANEL

Sound Technology 3200B Front Panel

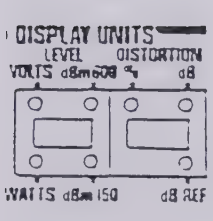


MEASUREMENT GROUP

A. LEVEL Switch

1.Flat

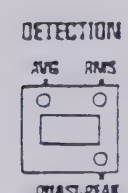
Press the panel switch until the Red LED under Flat is lit.



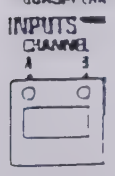
With the Level LED lit you may using the Display Units Group measure in Volts, dBm600, Watts or dBm150. The measurement range is from the noise floor of the unit measured to 100 volts.

The noise floor of the 3200B is 3 microvolts so a signal of 30 microvolts or higher will be accurately measured. Scale is autoranging, but the autoranging may be turned off by pressing the Autoranging Lockout switch.

With the Level Flat LED lit NO filters in the filter group can be activated.

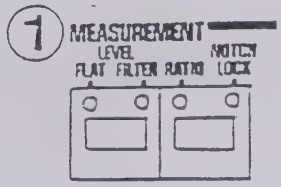


Averaging, Root-Mean-Square (RMS) or Quasi-Peak detection method can be selected by pressing the Detection Switch until the desired LED is lit.



Level may be measured on either Channel A, Channel B or Both A & B.

Sound Technology 3200B Front Panel

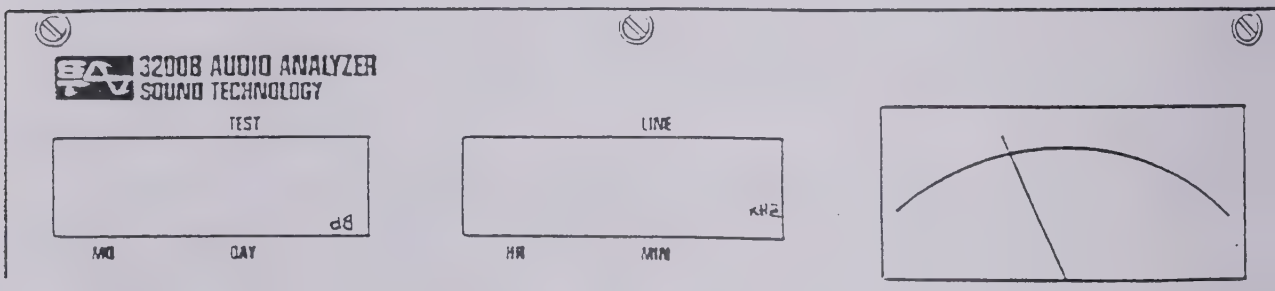


MEASUREMENT GROUP

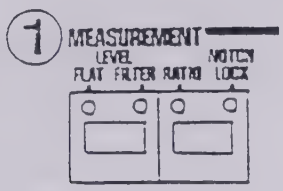
A. LEVEL Switch

1.Flat

If level is measured on just one channel it will be displayed in the left display and frequency will be shown in the right display.

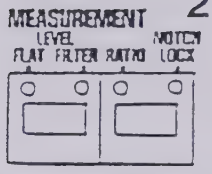


Sound Technology 3200B Front Panel



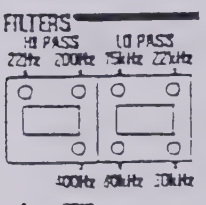
Measurements Group

A. Level Switch

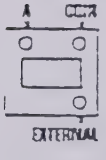


2. Filter

Press the Panel Switch until the Red LED under Filter is lit.

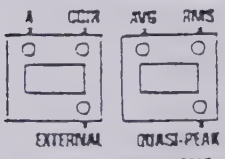


When measuring filtered level the operator may select from the Filters Group, one Hi Pass filter (22Hz, 200Hz, or 400Hz) and/or one Low Pass filter (15kHz, 22kHz, 30kHz, or 80kHz).

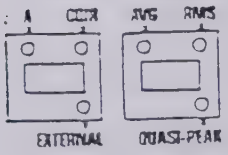


The operator may also select 'A', CCIR/ARM, or CCIR-468 weighting curves.

DETECTION

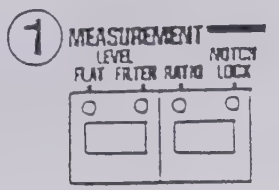


To select the CCIR/ARM (Dolby) weighting curve, light the CCIR LED and use AVG (Average) Detection.



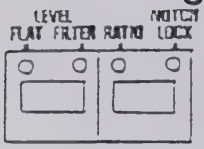
To select the CCIR-468 weighting curve, light the CCIR LED and use Quasi-Peak Detection.

Sound Technology 3200B Front Panel



Measurements Group

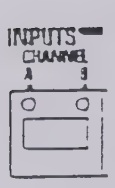
A. Ratio Switch



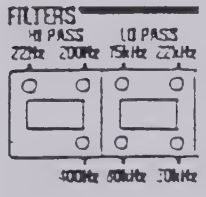
3. Ratio

Press switch #2 to light the Ratio LED

Ratio is used to perform dB relative measurements such as frequency response and signal to noise. The ratio measurements express a mathematical relationship between the measured level and a reference level, it is important to verify that the reference level is the level that is to be used for Ratio prior to accessing this measurement.

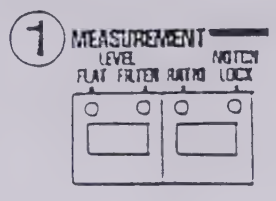


Ratio measurements of level can be made on either or both channels. If ratio is measured on just one channel, ratio appears on the left Display and Frequency will be display on the right Display.



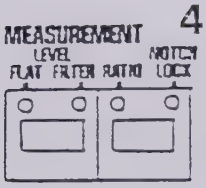
The operator may select filters and detection as noted previously.

Sound Technology 3200B Front Panel



Measurements Group

A. Notch Lock Switch

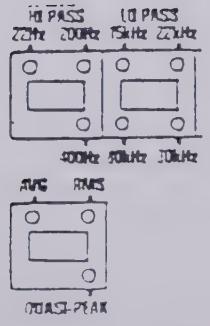


4. Notch Lock

Press Switch #2 to and light the Notch Lock LED.

This test is used to read noise level relative to the reference in the presence of a low level signal. This measurement is effective for determining quantization noise in digital audio.

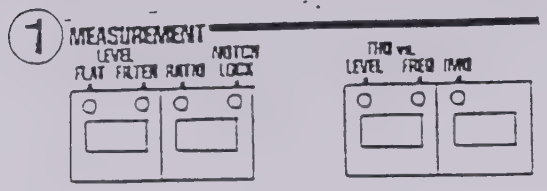
The measurement is basically a THD mode test, except the measurement is made with respect to the reference level instead of input level and is always expressed in dB. For the first four seconds after entering this mode, the Notch filter attempts to null and thereafter, expects an input signal greater than 10 millivolts higher than the noise floor. At the end of the four seconds, the Notch is locked and you can drop the signal level as low as desired.



Notch lock measurements should be made within the first 30 seconds of lock.

The operator can select filters and Detection as noted above.

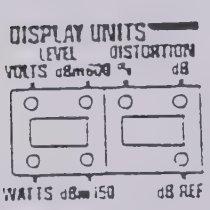
Sound Technology 3200B Front Panel

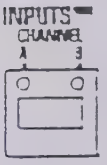


Measurements Group

B. THD Level Switch

1. THD Level or Frequency





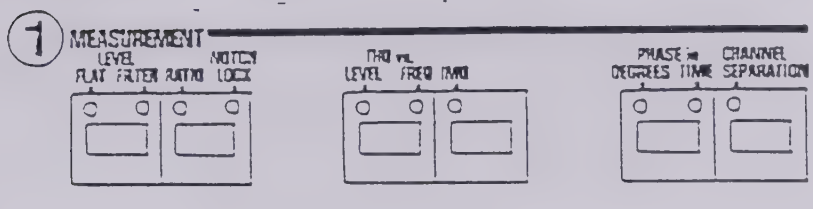
Total Harmonic Distortion can be measured as a function of frequency or Level.

Distortion may be measured in % or dB as selected in the Display Units Group.

Channel A or B may be measured but not both channels simultaneously.

The left Display will show % and the right Display will show Frequency.

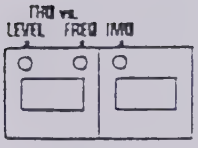
Sound Technology 3200B Front Panel



Measurements Group Group

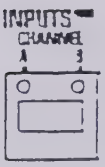
B. IMD Switch

2. IMD



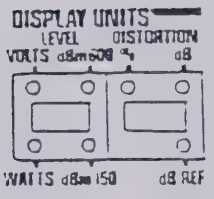
S.M.P.T.E. Intermodulation distortion 4:1, 7kHz-60Hz can be selected by lighting the IMD LED.

A minimum of 50 microvolts is required for an accurate measurement.



Measurements can be made on either channel but not both channels simultaneously.

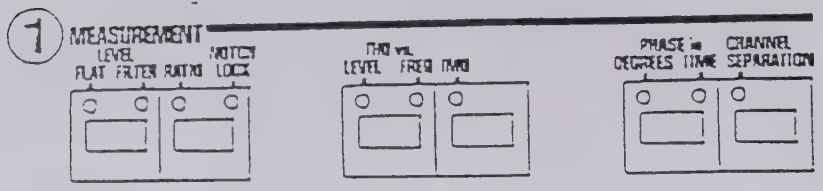
The distortion measurement is displayed in the left Display and level is displayed in the right Display.



Distortion may be % or dB as selected from the Display Units Group. Level may be displayed in Volts, dBm600, dBm150 or Watts.

No filters may be selected in the IMD measurement mode.

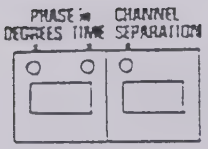
Sound Technology 3200B Front Panel



Measurements Group

C. Phase in Switch

1. Degrees / Time



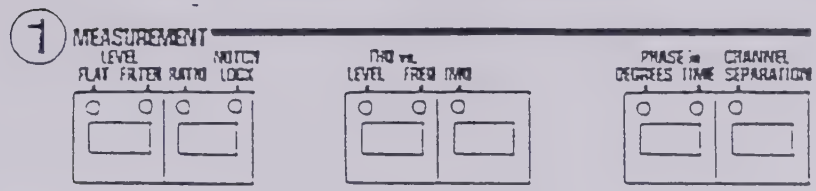
Press the Phase In switch to light either the Degrees or Time LED as desired.

Phase/Time error compares the channel A input to the channel B input and is displayed in the left Display while frequency is indicated in the right Display.

Phase/Time error can be measured between 10 Hz and 40kHz.

No filters may be used in the phase measurement.

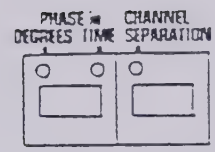
Sound Technology 3200B Front Panel



Measurement Group Group

C. Channel Separation Switch

2. Channel Separation

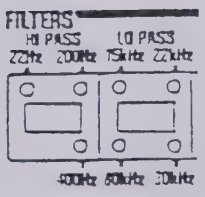


Press the Channel Separation switch to light the LED.

Channel Separation may be measured on either channel.

To measure crosstalk into channel B select the B channel on the Analyzer with a known signal coming into the A channel.

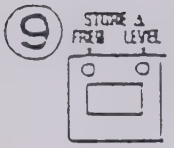
Separation measurements in dB are shown on the left Display and incoming frequency is shown on the right Display.



Filters may be select when making Channel Separation measurements.

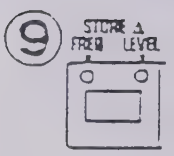
Store

A. Store Frequency



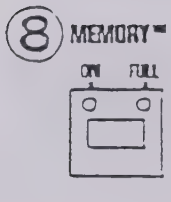
When the Store Freq LED is lit, the frequency increment in points per decade is shown in the right Display. The value may be modified by using the | | arrow keys.

B. Store Level



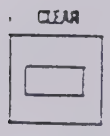
When the Store Level LED is lit, the level increment that will cause data storage is displayed in the right Display. The value may be modified by using the | | arrow keys.

C. Memory



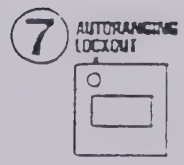
Lighting the Memory On LED allow the operator to scroll through past data results. Using the | | arrow keys the line number and data is shown in the displays.

D. Clear



Pressing the clear switch twice will clear the data memory storage area.

E. Autoranging Lockout



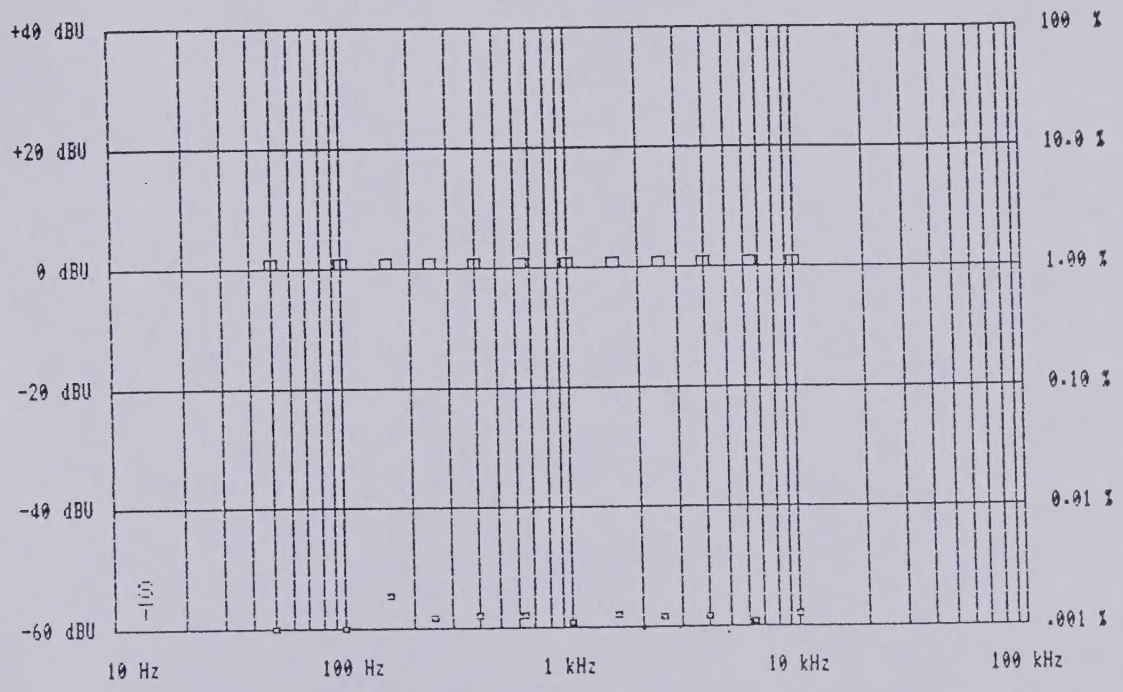
Lighting the Autoranging LED will lockout the automatic autoranging when low level signals are

Generator ID : _____ Auto Sequence No. : 14

TEST No. 3 *** THD ***

Time : 20:24 17 May 89 Generator Panel No. : 37
Input A RMS Detector
High Pass 22 Hz Low Pass 30kHz Not Weighted

Graph Symbols : □ Level ▫ Distortion



THD	FREQUENCY	LEVEL
0.0013 %	10.018 kHz	0.72 dBU
0.0011 %	6.322 kHz	0.72 dBU
0.0012 %	3.986 kHz	0.72 dBU
0.0012 %	2.513 kHz	0.72 dBU
0.0013 %	1.581 kHz	0.72 dBU
0.0011 %	1.001 kHz	0.72 dBU
0.0013 %	633 Hz	0.72 dBU
0.0013 %	399 Hz	0.72 dBU
0.0012 %	252 Hz	0.72 dBU
0.0019 %	158 Hz	0.72 dBU
0.0010 %	100 Hz	0.72 dBU
0.0010 %	50.0 Hz	0.72 dBU

MP MASTER
MA26544